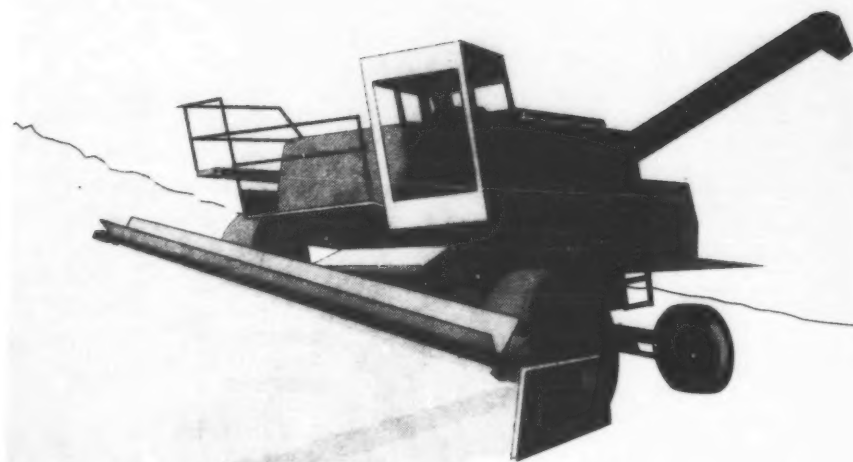


**ADF**



Saskatchewan  
Agriculture  
Development Fund

# Varieties of grain crops for Saskatchewan 1991



### **Saskatchewan Agriculture Development Fund (ADF)**

On October 1, 1989, the Government of Saskatchewan renewed its 1985 commitment to the future of Saskatchewan's agriculture and food sector through the proclamation of **The Agriculture Development Fund Act**. The Agriculture Development Fund (ADF) funds research, development and demonstration projects in the province's agri-food sector.

The ADF support efforts in areas such as crops and forages, soils, livestock, land improvement, engineering, economics, extension, marketing, new product development and agri-food processing.

In 1990 the ADF contributed \$211,100 to the Spring Grain Variety Trials conducted throughout the province by the University of Saskatchewan. In addition, ADF funds the printing and distribution of the **Varieties of Grain Crops for Saskatchewan**.

### **Saskatchewan Agricultural Services Coordinating Committee**

The Saskatchewan Agricultural Services Coordinating Committee (SASCC) is the agency which coordinates agricultural research and extension activities in Saskatchewan. SASCC has a system of advisory councils representing the major subject areas: extension, economics, forage crops, grain crops, soils and agronomy, crop protection, horticulture, agriculture and food engineering, food production and marketing, animal health, animal production, and agricultural meteorology. The advisory councils are further divided to cover specific subject areas. For example, the Advisory Council on Agricultural and Food Engineering works through sub-councils on power and machinery, structures and environment, soils and water, and food and process engineering.

The Advisory Council on Grain Crops is responsible for the recommendations in the **Varieties of Grain Crops for Saskatchewan** publication as well as other recommendations for grain crop production. The council, like all others, makes recommendations on research and extension to SASCC. The membership on the council is made up of representatives from: Agriculture Canada, Saskatchewan Agriculture and Food, University of Saskatchewan, Crop Development Centre, Saskatchewan Wheat Pool, Saskatchewan Rural Development, Canadian Seed Trade Association, Saskatchewan Seed Grower's Association, and farmers.

The Advisory Council on Grain crops gratefully acknowledges the contribution of Agriculture Canada, University of Saskatchewan, the Crop Development Centre and all other researchers involved in the research and analysis which comprise the recommendation in this publication.

### **Contributing Agencies**



Agriculture  
Canada



Saskatchewan  
Agriculture  
and Food

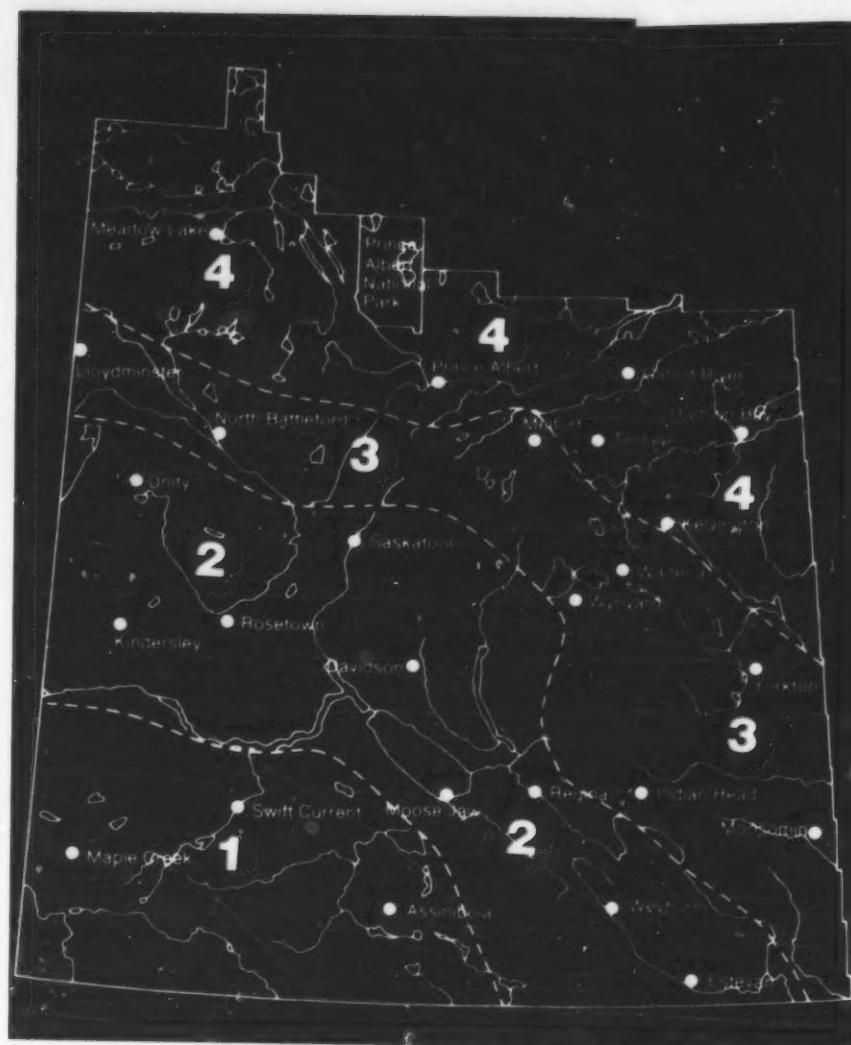
Soils and Crops  
Branch



University of  
Saskatchewan

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## Grain Crop Production Areas

The cropland of Saskatchewan has been divided into four areas based roughly on climate, vegetation and soil type. The relative yields of crop varieties tend to vary from area to area. In choosing a variety a farmer will want to consider the yields in his area and special requirements such as early maturity, disease resistance or sawfly resistance.

**Area 1:** Drought is a definite hazard and high winds are common. Sawfly outbreaks often occur in this area. Cereal rust may

be a problem in the southeastern section.

**Area 2:** Drought and sawflies may be problems in the western and central sections of the area. Cereal rust may be a problem in the southeastern section.

**Area 3:** Drought is not as likely to be a problem in this area, particularly in the east. Cereal rust may occur in the eastern portion. The frost-free period can be fairly short in the northwestern and northeastern sections.

**Area 4:** Rainfall is usually adequate for crop production. However, early fall frosts and wet harvest weather are frequent problems.

The dividing lines do not represent distinct changes over a short distance. The change from one area to another is gradual.

# Cereal Crops

## Wheat

### Main Characteristics of Varieties

| Variety                     | Irr | Yield as % of Katepwa |        |        |        | Average Maturity in Days | Resistance to** |              |      |           |            |      |          |
|-----------------------------|-----|-----------------------|--------|--------|--------|--------------------------|-----------------|--------------|------|-----------|------------|------|----------|
|                             |     | Area 1                | Area 2 | Area 3 | Area 4 |                          | Shat-Lodging    | Stem-terring | Rust | Leaf Rust | Loose Smut | Bunt | Root Rot |
| Bread Wheat                 |     |                       |        |        |        |                          |                 |              |      |           |            |      |          |
| Katepwa                     | 100 | 100                   | 100    | 100    | 100    | 98                       |                 |              |      |           |            |      |          |
| Benito                      | 94  | 95                    | 95     | 97     | 97     | 97                       | G               | G            | VG   | F         | G          | G    | F        |
| Columbus*                   | 98  | 101                   | 101    | 97     | 102    | 97                       | G               | G            | G    | G         | G          | F    | F        |
| Conway                      | 102 | 98                    | 98     | 97     | 98     | 98                       | G               | F            | G    | VG        | F          | VG   | F        |
| Kenyon                      | 98  | 97                    | 97     | 95     | 98     | 98                       | G               | G            | G    | P         | G          | F    | F        |
| Laura                       | 88  | 103                   | 105    | 105    | 104    | 100                      | G               | G            | VG   | VG        | G          | F    | F        |
| Leader                      | 95  | 96                    |        |        | 100    | 100                      | G               | G            | G    | F         | F          | P    | G        |
| Lancer                      | 94  | 95                    |        |        | 100    | 100                      | F               | F            | G    | F         | F          | G    | P        |
| CDC                         |     |                       |        |        | 100    | 100                      | F               | VG           | G    | G         | G          | G    | F        |
| Makwa***                    | 103 | 103                   | 104    | 101    | 101    | 98                       |                 |              |      |           |            |      |          |
| Neepawa                     | 99  | 100                   | 99     | 98     | 98     | 98                       | G               | G            | G    | F         | G          | F    | F        |
| Pasqua***                   | 105 | 103                   | 105    | 102    | 99     | 99                       | G               | VG           | G    | P         | G          | F    | F        |
| Roblin                      | 82  | 92                    | 89     | 92     | 97     | 97                       | G               | G            | G    | VG        | F          | F    | F        |
|                             |     |                       |        |        |        |                          | VG              | G            | G    | VG        | G          | P    | G        |
| Canada Prairie Spring Wheat |     |                       |        |        |        |                          |                 |              |      |           |            |      |          |
| Biggar*                     | 121 | 119                   | 120    | 127    | 125    | 102                      |                 |              |      |           |            |      |          |
| Genesis*                    | 115 | 122                   | 125    | 125    | 123    | 102                      | G               | G            | G    | G         | VP         | VP   | F        |
| Oslo                        | 99  | 95                    | 100    | 100    | 95     | 98                       | F               | VG           | G    | F         | F          | VP   | F        |
|                             |     |                       |        |        |        |                          | G               | G            | G    | G         | P          | F    | F        |
| Canada Western Utility      |     |                       |        |        |        |                          |                 |              |      |           |            |      |          |
| Bluesky                     | 93  | 89                    | 93     | 95     | 99     | 99                       |                 |              |      |           |            |      |          |
| Glenlea                     | 95  | 105                   | 108    | 110    | 101    | 101                      | G               | G            | G    | F         | VG         | F    | G        |
| Wildcat                     | 85  | 82                    | 87     | 91     | 98     | 98                       | G               | G            | G    | G         | VG         | F    | G        |
|                             |     |                       |        |        |        |                          | G               | G            | G    | P         | VG         | VP   | G        |
| Yield as % of Kyle          |     |                       |        |        |        |                          |                 |              |      |           |            |      |          |
| Durum Wheat                 |     |                       |        |        |        |                          |                 |              |      |           |            |      |          |
| Kyle                        | 100 | 100                   | 100    | 100    | 103    | 103                      |                 |              |      |           |            |      |          |
| Arcola                      | 108 | 92                    | 93     | 97     | 96     | 99                       | F               | VG           | VG   | VG        | F          | VG   | F        |
| Medora                      | 100 | 96                    | 96     | 97     | 96     | 100                      | G               | VG           | VG   | VG        | F          | VG   | F        |
| Plenty***                   | 108 | 100                   | 107    | 107    | 108    | 102                      | G               | VG           | VG   | VG        | F          | VG   | F        |
| Sceptre                     | 102 | 97                    | 97     | 98     | 100    | 100                      | G               | VG           | VG   | VG        | P          | VG   | G        |
| Wakooma                     | 88  | 91                    | 96     | 96     | 97     | 102                      | G               | VG           | VG   | VG        | F          | VG   | G        |
| Wascana                     | 96  | 96                    | 95     | 90     | 101    | 101                      | F               | VG           | VG   | VG        | F          | VG   | G        |
|                             |     |                       |        |        |        |                          | F               | VG           | VG   | VG        | F          | VG   | F        |

\*These varieties are variable

\*These varieties are variable in maturity and may mature later under cool conditions.  
 \*\*Resistance ratings: VG — very good; G — good; F — fair; P — poor; VP — very poor.  
 \*\*\*Relative yield based on less than three years of data in Area 4.  
 - No data available.

### Comments

Seed of varieties rated poor and very poor to bunt and loose smut should be treated. Please refer to the Seed Treatment section of this pamphlet or **Seed Treatments and Follar Fungicides, 1991** pamphlet. During wet harvest weather grades drop more rapidly due to sprouting in swathed than in standing crops.

### Canada Western Red Spring Wheat

CDC Makwa is higher yielding than Katepwa and has the same maturity. It has good resistance to stem rust and loose smut; and fair resistance to leaf rust, common bunt, and common root rot. Certified seed of CDC Makwa will not be available in 1991. Pasqua has performed well in all

areas. It has good resistance to leaf rust and stem rust; and fair resistance to loose smut, common bunt, and common root rot. Pasqua is slightly shorter and stronger strawed than Katepwa and slightly later maturing than Katepwa. Pasqua might have sprouting tolerance intermediate to Katepwa and Columbus. Certified seed of Pasqua will not be available in 1991.

**Conway** has performed well in the Brown soil zone. **Conway** has poor leaf rust resistance and is not suited for the eastern Prairies.

**Columbus** has good leaf rust resistance and has better sprouting and weatheng resistance than the other varieties except **Leader** and **Lancer**. **Columbus** is late maturing and must be sown early, particularly in Area 4.

**Katepwa** is similar to **Neepawa** but has better stem and leaf rust resistance and is easier to thresh.

**Kenyon** is similar to **Neepawa** and has very good leaf and stem rust resistance.

**Laura** is higher yielding than other varieties and matures about two days later than **Katepwa**. **Laura** has an awned head and good shattering resistance.

**Roblin** has very good leaf and good stem rust resistance. Under drought stress grain yield of **Roblin** can be reduced more than other varieties.

**Roblin** is early maturing, and strong strawed making it best suited to northern areas. Generally, **Roblin** has higher protein content than other varieties.

**Leader** and **Lancer** are resistant to wheat stem sawfly. **Lancer** has better resistance to wheat stem sawfly, seed shattering and root rot than **Leader**.

### Canada Prairie Spring Wheat

**Biggar** is a high yielding, awned, semi-dwarf wheat. It is late maturing and must be sown early particularly in Area 4.

**Oslo** is similar in maturity to **Katepwa** and lower yielding than **Biggar**. Both **Biggar** and **Oslo** are red-seeded.

**Genesis** is white-seeded and sprouts similar to durum wheat under wet harvest conditions. It is high yielding and late maturing. **Genesis** is slightly taller and weaker strawed than **Katepwa**. It is best suited to Areas 1 and 2.

### Canada Western Utility

**Bluesky** and **Wildcat** are earlier maturing than **Glenlea** and lower yielding.

### Canada Western Amber Durum

All durum varieties are susceptible to two new races of loose smut. Seed can be treated to provide control. See the **Seed Facts** section for details.

**Arcola**, **Medora** and **Sceptre** are early maturing and have short, strong straw.

**Kyle** has high yield potential but is a little tall and late maturing, making it best suited to the Brown and Dark Brown soil zones.

**Plenty** has performed well in all areas. It is similar to **Kyle** in height, but is stronger strawed and slightly earlier maturing. Certified seed of **Plenty** will not be available in 1991.

**Sceptre** is the shortest, strongest-strawed durum variety, and has performed well under both dryland and irrigated conditions.

### Soft White Spring Wheat

**Fielder** and **SWS-52** are semidwarf varieties and are the only varieties eligible for grades of this class.

**SWS-52** is later maturing and stronger strawed than **Fielder**. **SWS-52** has moderate resistance to black point, bunt, powdery mildew and shattering. They are both susceptible to loose smut and sprouting of the grain before harvest. **Fielder** is susceptible to bunt. Certified seed of **SWS-52** will not be available in 1991. **Owens** will be deregistered February 28, 1991 and after that time will be eligible only for Canada Feed grade.

### Winter Wheat

Winter survival is the chief factor limiting winter wheat production in Saskatchewan. However, with proper management successful production is possible. This means that, in most years, some form of snow trapping is necessary in most of Saskatchewan to ensure overwintering.

**Norstar** is the most winter-hardy variety of winter wheat available. In addition, it is high-yielding and has acceptable baking quality.

**Norwin** is a semi-dwarf variety. It has very short, strong straw. Its winter hardiness and yield are inferior to **Norstar**. **Norwin** should be grown only under low winter stress, high moisture conditions where lodging and excessive straw production are problems.

## Testing Varieties in Saskatchewan

Information in the pamphlet "Varieties of Grain Crops in Saskatchewan" is based on the performance of varieties at a number of locations across the province. Data from these trials are summarized and interpreted by the Grain Crops Sub-council to the Saskatchewan Advisory Council on Grain Crops.

These trials are conducted by researchers from Agriculture Canada and the University of Saskatchewan. The most recently registered varieties and promising experimental lines that might become registered are

compared to standard varieties. Wheat, oat, barley and flax varieties are grown at all locations, whereas canola, mustard, field pea, lentil and minor crops are tested in those regions in which they are considered to be adapted. Information on sunflower production is received from trials conducted under the auspices of the Saskatchewan Sunflower Committee. The reaction of varieties to diseases and seed treatment recommendations are updated and forwarded to the Grain Crops Sub-council by pathologists who meet as members of

the Plant Disease Sub-council of the Council on Crop Protection.

Variety Trials are grown both on Research Stations and farmers' fields. Multiple small plots (30 ft. to 45 ft. ) of the various varieties are sown and harvested with miniature press-drills and combines.

Grain yield results from the interplay of genetic factors and non-genetic factors. Variety trials are designed to measure the differences between varieties that are due to

*Continued on Page 6*

# Barley

## Main Characteristics of Varieties

| Type & Variety       | 2 or 6 row | Rough or Smooth Awns | Irr Yield as % of Duke | Yield as % of Harrington |        |        |        | Average Maturity in Days | Resistance to* |              |            |           |            |                  |          |    |  |  |
|----------------------|------------|----------------------|------------------------|--------------------------|--------|--------|--------|--------------------------|----------------|--------------|------------|-----------|------------|------------------|----------|----|--|--|
|                      |            |                      |                        | Area 1                   | Area 2 | Area 3 | Area 4 |                          | Lodging        | Shat- tering | Net Blotch | Stem Rust | Loose Smut | Other Root Smuts | Root Rot |    |  |  |
|                      |            |                      |                        |                          |        |        |        |                          |                |              |            |           |            |                  |          |    |  |  |
| Malting              |            |                      |                        |                          |        |        |        |                          |                |              |            |           |            |                  |          |    |  |  |
| Harrington           | 2          | R                    | -                      | 100                      | 100    | 100    | 100    | 92                       | G              | VG           | P          | P         | P          | P                | VP       | G  |  |  |
| Argyle               | 6          | S                    | -                      | 92                       | 92     | 95     | 94     | 91                       | VG             | VP           | F          | G         | P          | P                | VP       | G  |  |  |
| Bonanza              | 6          | S                    | -                      | 93                       | 91     | 93     | 93     | 89                       | G              | VP           | F          | G         | P          | P                | P        | G  |  |  |
| B1602                | 6          | R                    | -                      | 86                       | 90     | 90     | 87     | 90                       | G              | P            | F          | G         | P          | P                | F        | VG |  |  |
| Ellice               | 2          | R                    | -                      | 92                       | 95     | 97     | 96     | 92                       | G              | VG           | F          | G         | P          | P                | P        | P  |  |  |
| Klages               | 2          | R                    | -                      | 98                       | 92     | 95     | 93     | 94                       | F              | VG           | P          | P         | P          | P                | G        | G  |  |  |
| Manley               | 2          | R                    | -                      | 98                       | 104    | 104    | 106    | 94                       | G              | VG           | F          | G         | P          | P                | P        | G  |  |  |
| Feed                 |            |                      |                        |                          |        |        |        |                          |                |              |            |           |            |                  |          |    |  |  |
| Abee                 | 2          | R                    | -                      | 101                      | 104    | 104    | 100    | 94                       | P              | VG           | P          | P         | P          | P                | F        | G  |  |  |
| Bridge**             | 2          | R                    | -                      | 108                      | 105    | 108    | 94     | 93                       | G              | VG           | P          | F         | P          | P                | P        | F  |  |  |
| Brier                | 6          | S                    | -                      | 119                      | 108    | 110    | 108    | 92                       | F              | F            | G          | G         | VG         | P                | G        | VP |  |  |
| Deuce                | 2          | R                    | -                      | 97                       | 98     | 99     | 98     | 92                       | G              | VG           | F          | G         | P          | P                | G        | G  |  |  |
| Heartland            | 6          | S                    | 102                    | 96                       | 100    | 100    | 100    | 92                       | VG             | F            | VG         | G         | P          | P                | P        | G  |  |  |
| Johnston             | 6          | S                    | -                      | 107                      | 106    | 107    | 107    | 94                       | VP             | P            | F          | G         | G          | P                | VP       | P  |  |  |
| Leduc                | 6          | R                    | 99                     | 106                      | 107    | 103    | 99     | 91                       | P              | P            | G          | G         | VG         | F                | G        | F  |  |  |
| N                    | 6          | S                    | -                      | 98                       | 101    | 101    | 101    | 91                       | G              | F            | G          | P         | P          | P                | F        | P  |  |  |
| Virden               | 6          | S                    | -                      | 106                      | 104    | 106    | 108    | 95                       | VG             | G            | F          | G         | P          | P                | P        | VG |  |  |
| Hulless              |            |                      |                        |                          |        |        |        |                          |                |              |            |           |            |                  |          |    |  |  |
| CDC Buck**6          | R          | -                    | 79                     | 86                       | 83     | 87     | 90     | G                        | F              | F            | G          | P         | P          | F                | G        |    |  |  |
| CDC Richard**2       | R          | -                    | 70                     | 92                       | 91     | 83     | 91     | F                        | F              | P            | G          | VG        | F          | P                | G        |    |  |  |
| Condor               | 2          | R                    | -                      | 83                       | 84     | 82     | 80     | 92                       | G              | G            | P          | F         | P          | P                | P        | G  |  |  |
| Scout                | 2          | R                    | -                      | 91                       | 85     | 84     | 79     | 91                       | P              | VG           | VP         | P         | P          | P                | VP       | G  |  |  |
| Tupper               | 6          | R                    | -                      | 74                       | 77     | 83     | 76     | 90                       | G              | P            | F          | G         | P          | F                | VP       | G  |  |  |
| Intensive Management |            |                      |                        |                          |        |        |        |                          |                |              |            |           |            |                  |          |    |  |  |
| Duke                 | 6          | R                    | 100                    | 91                       | 89     | 88     | 89     | 93                       | VG             | F            | F          | G         | VG         | P                | F        | G  |  |  |
| Samson               | 6          | R                    | 95                     | 91                       | 88     | 87     | 85     | 92                       | VG             | F            | F          | G         | P          | P                | F        | G  |  |  |
| Winchester           | 6          | R                    | 94                     | 97                       | 85     | 87     | 90     | 90                       | VG             | F            | G          | P         | VG         | P                | G        | G  |  |  |

\*Resistance ratings; VG — very good; G — good; F — fair; P — poor; VP — very poor.

\*\*Less than 3 years yield data in Area 4.

### Comments

A new race of stem rust which attacks all of our previously resistant varieties has appeared in the eastern prairies and the northern great plains. It is not yet clear how persistent this race will be over time. Early sowing is the only practical measure which can be taken at this time.

None of the current two-rowed varieties have good field resistance to all races of net blotch. Therefore, growers who must plant barley on barley stubble should select six-rowed varieties which are more tolerant.

None of the available varieties are resistant to all three types of smut.

Therefore, seed should be treated on a regular basis. See the Seed Facts section for details.

In hulless varieties the hull is left in the field, therefore comparable yields are 10-15% lower. Hulless seed is more susceptible to damage than hulled seed, so handling should be minimized. Markets for hulless barley have not been clearly defined but it should be valuable for hog feed, pet food and human consumption. CDC Richard and CDC Buck are hulless replacements for Scout and Tupper respectively. They both have improved yield, threshability and disease resistance.

**Noble** is a new six-rowed variety. It has yielded well in drier locations. It has good lodging and shattering resistance and is similar to **Leduc** in maturity. **Virden** is a new six-rowed feed variety. It has a very high yield potential but is very late. It has very good straw strength. **Brier** is a new six-rowed feed variety. It has very good yield potential and good disease resistance. **AC Stacey** is a new early maturing 6-row feed variety. While it is slightly better than **Jackson**, it is still 10-20% lower yielding than **Harrington**. **Bridge** is a new two-rowed feed variety with good yielding ability; it is slightly later than

**Harrington** with similar disease resistance.

**Manley** is a new two-rowed malting variety with very good yield potential and better disease resistance than **Harrington**. It has moderate resistance to the spotted form of net blotch. **Manley** is similar in maturity to **Klages** and thus should be sown early. **Manley** has completed plant scale malting and brewing trials and has been rated as acceptable by the Brewing and Malting Barley Research Institute. Growers are reminded, however, that the industry is very cautious about moving into the use of new varieties. **B1602** has also been judged to have suitable malting and brewing quality. It is a six-rowed white aleurone variety and thus cannot be distinguished from feed varieties. Therefore, it should only be grown under contract. Saskatchewan tests have shown it to be slightly lower yielding than **Bonanza**, otherwise similar to it. Growers are cautioned that malting varieties, especially two rows, are very susceptible to sprouting.

Harvesting grain over 16% moisture and then using aeration bins for drying

can lead to sprouting and embryo death. Seed with reduced germination is undesirable for seeding or malting purposes.

### Irrigation

Under irrigation, disease resistance, straw strength and maturity are more critical. Growers should select early, strong-strawed, disease resistant varieties.

**Samson**, **Duke** and **Winchester** are semidwarf feed varieties. They should be grown only under high moisture, high fertility conditions which would cause severe lodging of conventional varieties. High productivity tests in Saskatchewan have shown **Duke** to outyield **Samson** by 5%, **Winchester** is intermediate. **Duke** is 1-2 days later than **Samson** and **Winchester** is 1-2 days earlier.

### Lines under Interim Registration for Evaluation of malting and Brewing Quality

Small scale tests are a good measure of malting potential but are not

sufficient to determine the commercial acceptability of malting varieties. Final acceptance is given only after two years of successful plant scale evaluation. Several carload lots of barley are malted and subsequently brewed. The beer is then given the ultimate test — a taste panel. This process will normally take a minimum of three years. Crop grown in 1990 will be malted in January-February, 1991. It will be brewed in May-June, 1991, aged and tested in October-November, 1991. A crop grown in 1991 will be tested in October-November, 1992. To facilitate this testing "Interim Registration" has been established as a special category. This registration is granted for one year at a time renewable for a total of three years. It allows seed increase and marketing in a normal manner but automatically expires if performance of the line is not satisfactory. If performance is satisfactory then a full registration is granted. Production of the carload lots for evaluation is done by contract through the Canadian Wheat Board. **The following lines are currently under test:**

### Lines under Interim Registration Main Characteristics of Lines

| Type and Line  | Yield as a % of Harrington |        |        |        |                          | Resistance to* |            |            |            |             |          |           |
|----------------|----------------------------|--------|--------|--------|--------------------------|----------------|------------|------------|------------|-------------|----------|-----------|
|                | Area 1                     | Area 2 | Area 3 | Area 4 | Average Maturity in Days | Lodging        | Shattering | Net Blotch | Loose Smut | Other Smuts | Root Rot | Stem Rust |
| <b>Two Row</b> |                            |        |        |        |                          |                |            |            |            |             |          |           |
| TR930          | 99                         | 101    | 106    | 100    | 93                       | G              | G          | P          | P          | P           | P        | P         |
| Stein          | 102                        | 102    | 103    | 103    | 92                       | G              | G          | F          | P          | F           | G        | G         |
| TR226          | 90                         | 94     | 96     | 95     | 92                       | G              | VG         | F          | VG         | G           | F        | G         |
| <b>Six Row</b> |                            |        |        |        |                          |                |            |            |            |             |          |           |
| Duel           | 92                         | 96     | 98     | 94     | 92                       | G              | VP         | G          | P          | P           | G        | G         |
| Tankard        | 94                         | 101    | 101    | 97     | 92                       | G              | VP         | F          | P          | P           | G        | G         |
| Creme          | 80                         | 88     | 85     | 83     | 91                       | G              | VP         | F          | P          | P           | G        | G         |

\*Resistance ratings; VG — very good; G — good; F — fair; P — poor; VP — very poor.

### Comments:

**Stein** has higher yield potential, and better disease resistance than **Harrington**. **TR930** is similar in performance and disease reaction to **Harrington**, **TR226** is lower yielding than **Harrington** but has good disease resistance. It is the only variety with

loose smut resistance. **Duel** and **Tankard** are both blue aleurone six rows with superior yield to **Bonanza** and **Argyle**. **Creme** is of interest because it has a white aleurone. It may be suitable to meet the US market for white aleurone six row.

## Triticale

### Main Characteristics of Varieties

| Variety | Yield as % of Carman |        |        |        | Average Maturity in Days | Resistance to* |           |           |      |          |
|---------|----------------------|--------|--------|--------|--------------------------|----------------|-----------|-----------|------|----------|
|         | Area 1               | Area 2 | Area 3 | Area 4 |                          | Lodging        | Stem Rust | Leaf Rust | Bunt | Root Rot |
| Carman  | 100                  | 100    | 100    | 100    | 107                      |                |           |           |      |          |
| Frank   | 115                  | 117    | 110    | 127    | 105                      | G              | VG        | VG        | VG   | F        |
| Wapiti  | 109                  | 119    | 111    | 106    | 107                      | G              | VG        | VG        | VG   | F        |
|         |                      |        |        |        |                          | G              | VG        | VG        | VG   | G        |

\*Resistance ratings: VG — very good; G — good; F — fair; P — poor; VP — very poor.

#### Comments

Triticale matures 3-5 days later than **Biggar** wheat therefore, should be seeded as early as possible. Triticale matures very late in Area 4.

## Rye

### Main Characteristics of Varieties

| Variety         | Yield as % of Puma |           |           |           | Resistance to*    |                 |         |              |                 |
|-----------------|--------------------|-----------|-----------|-----------|-------------------|-----------------|---------|--------------|-----------------|
|                 | Area<br>1          | Area<br>2 | Area<br>3 | Area<br>4 | Winter<br>Killing | Shat-<br>tering | Lodging | Stem<br>Smut | Straw<br>Length |
| Musketeer ..... | 100                | 100       | 100       | 100       |                   |                 |         |              |                 |
| Prima .....     | 109                | 108       | 106       | 108       | G .....           | G .....         | G ..... | G .....      | Tall            |
| Puma .....      | 95                 | 99        | 97        | 94        | G .....           | G .....         | F ..... | G .....      | Tall            |
|                 |                    |           |           |           | G .....           | G .....         | F ..... | P .....      | Tall            |

\*Resistance ratings: VG — very good; G — good; F — fair; P — poor; VP — very poor.

#### Comments

**Gazelle** is the only registered variety of spring rye.

Continued from Page 3

### Testing Varieties in Saskatchewan

genetic causes. It is important to minimize variability due to non-genetic factors such as soil type, nutrients, moisture, weeds, diseases, and other pests. Experimental designs using replication (repeated plantings of the varieties) and randomization (the position of the varieties within the test are assigned by chance) are then used to estimate the precision with which the genetic factors can be measured. Yield potential of a variety is estimated by measuring the weight of grain produced per unit area. Comparisons among varieties for yield potential involves an evaluation of both their absolute amounts of grain and their relative yield. Relative yield is the yield of one variety expressed as a

percentage of a second variety.

Yields obtained in these trials are not likely to be identical to those obtained under commercial production conditions. However, the average yield for these varieties, obtained over a number of years at several locations, would remain in relatively the same ratio regardless of whether the grain yields were measured in small plots or large-scale fields. **Relative yields** presented in this pamphlet are the best estimates of expected yield advantage in the areas indicated. They are considerably more relative than estimates based on data from a single test or from a single location. Farmers should be aware, however, that actual yields within an area, or in a particular year, may vary substantially from the average figures reported because of natural variability. For example, Laura wheat is expected to outyield Katepwa by 5% in Area 2. A farmer in this area

may find that Laura will yield anywhere in the range of about 7 percent less than Katepwa to about 17 percent more than Katepwa.

One out of three times, Laura may even yield outside this range. Similar variation in relative yields can be expected for most crops.

**Relative maturity** ratings are average number of days from seeding to swathing ripeness. The actual number of days to reach maturity depends on local climate and to some extent management practices. For example, Neepawa will often mature in less than 98 days in Area 1 and may require 120 days in Area 4. The maturity ratings should be considered as a guide to the relative maturity of the varieties, that is, whenever and wherever, Neepawa and Columbus are both seeded at the same time, Neepawa will reach maturity sooner than Columbus.

## Oat

### Main Characteristics of Varieties

| Variety   | Yield as % of Calibre |           |           |           | Test wt.<br>(kg/hl) | %<br>Hull | %<br>Plump | Average<br>Maturity<br>in days | Resistance to* |              |              |      |
|-----------|-----------------------|-----------|-----------|-----------|---------------------|-----------|------------|--------------------------------|----------------|--------------|--------------|------|
|           | Area<br>1             | Area<br>2 | Area<br>3 | Area<br>4 |                     |           |            |                                | Lodging        | Stem<br>Rust | Leaf<br>Rust | Smut |
| Calibre   | 100                   | 100       | 100       | 100       | 50.0                | 22.9      | 44         | 93                             | G              | VP           | VP           | P    |
| Cascade   | 105                   | 98        | 99        | 97        | 47.4                | 26.0      | 48         | 92                             | G              | VP           | VP           | P    |
| Derby     | 100                   | 100       | 99        | 104       | 50.1                | 22.2      | 74         | 93                             | G              | VP           | VP           | F    |
| Dumont    | 96                    | 98        | 96        | 95        | 48.8                | 23.5      | 64         | 94                             | F              | VG           | VG           | G    |
| Jasper    | 93                    | 90        | 92        | 93        | 50.0                | 22.5      | 42         | 89                             | F              | VP           | VP           | P    |
| Riel      | 93                    | 96        | 92        | 96        | 50.0                | 21.0      | 46         | 93                             | G              | VG           | VG           | G    |
| Robert    | 94                    | 94        | 92        | 95        | 48.5                | 22.5      | 87         | 93                             | VG             | VG           | VG           | G    |
| Waldren** | 93                    | 96        | 101       | 105       | 45.7                | 25.0      | 74         | 94                             | G              | VP           | VG           | F    |

\*Resistance ratings: VG — very good; G — good; F — fair; P — poor; VP — very poor.

\*\*Less than 3 years data available in Area 4.

### Comments

**Calibre** has high yield potential and superior kernel quality, having very high test weight and low percent hull.

**Cascade** has high yield potential but poorer kernel quality being lower in test weight with higher hull content.

**Cascade** is one to two days earlier maturing than **Calibre**.

**Derby** is a new variety, having high yield potential and test weight, but plumper grain and lower hull content than **Calibre**. It is slightly earlier than **Calibre** but not as early as **Cascade**.

**Calibre**, **Cascade** and **Derby** are susceptible to oat-rusts and may be at

risk if grown in the oat-rust area of southeast Saskatchewan.

**Dumont** has excellent disease resistance and good kernel quality, however it has weaker straw and lower yield potential and is one to two days later maturing than **Calibre**. **Dumont** should be considered for use in the oat rust-area of southeastern Saskatchewan.

**Jasper** is an earlier maturing variety with kernel quality similar to **Calibre**, however its yield potential is considerably lower. **Jasper** is also rust susceptible.

**Riel** and **Robert** have tan colored grain. They have very good kernel

quality and disease resistance, however, yield potential is generally lower than other varieties available.

**Robert** has somewhat better tolerance to Barley Yellow Dwarf Virus than other varieties.

**Waldren** is a new variety with large grain size. However, it has very low test weight and high hull content and as such is not as likely to be desirable for milling and specialty markets.

**Waldren** is rust susceptible so should not be considered for the oat-rust area of southeastern Saskatchewan. Certified seed of **Waldren** will not be available for seeding in 1991.

### Reading Material

#### Agriculture Canada

Ergot of Grains and Grasses, Publ. 1438.  
Growing Buckwheat, Publ. 1986-7E.  
Heated Air Grain Driers, Publ. 1700.  
Insects and Mites of Farm-Stored Grain, Publ. 1595.

#### Canadian Grain Commission

Insect Control in Stored Grain, A Producers Guide.

#### Canola Council of Canada

Canola Production Manual.  
Fertilizer Practices for Canola.

#### Flax Council

Growing Flax

#### Saskatchewan Agriculture & Food

Aeration of Grain in Storage  
Blackleg: A Disease of Canola.  
Chemical Weed Control in Cereal, Oilseed, Pulse and Forage Crops, 1991.  
Control of Canada Thistle.  
Durum Production.  
Forage Crop Recommendations.  
Grasshopper Control.  
Hulless Barley Production  
Interpreting Cultivar Grain Yield Potential  
Insect Control in Field Crops.  
Irrigation Handi-Facts; Sask. Water Corp.  
Milling & Race Horse Oat Production.  
Mustard Growers Manual.  
Natural Air Grain Drying.  
Orange Wheat Blossom Midge.  
Russian Wheat Aphid

#### Saskatchewan Fertilizer Practices.

Seed Treatments and Foliar Fungicides, 1991.  
Soft White Spring Wheat, Sask. Water Corp.  
To Spray or Not to Spray.  
Weed Identification Series.  
Weed Seedling Identification.

#### Saskatchewan Seed Grower's Association.

Seed Guide, 1991.

#### University of Saskatchewan

Canaryseed Production in Saskatchewan, Publ. 462.  
Dry Pea Production in Saskatchewan, Publ. 225  
Fababean Production in Saskatchewan, Publ. 416  
Inoculation, Publ. 381.  
Lentil Production in Western Canada.  
Winter Wheat Production Series.

# Oilseed Crops

## Canola

### Main Characteristics of Varieties

| Type & Variety                             |        |        |        |       | Average Maturity in days | Resistance to* |            |            |                      |
|--------------------------------------------|--------|--------|--------|-------|--------------------------|----------------|------------|------------|----------------------|
|                                            | Area 2 | Area 3 | Area 4 | % Oil |                          | Lodging        | White Rust | Blackleg** | Sclerotinia Stem Rot |
| Yield as % of Westar                       |        |        |        |       |                          |                |            |            |                      |
| Argentine                                  |        |        |        |       |                          |                |            |            |                      |
| Westar                                     | 100    | 100    | 100    | 43.1  | 96                       | F              | VG         | VP         | P                    |
| AC Excel                                   | 108    | 101    | 100    | 43.6  | 99                       | G              | VG         | F          | P                    |
| Alto                                       | 101    | 96     | 98     | 43.0  | 97                       | F              | VG         | VP         | P                    |
| Bounty                                     | 115    | 108    | 105    | 42.8  | 98                       | G              | VG         | P          | P                    |
| Celebra                                    | 107    | 99     | 97     | 43.4  | 102                      | G              | VG         | F          | P                    |
| Delta                                      | 116    | 107    | 109    | 41.8  | 100                      | VG             | VG         | P          | P                    |
| Hyola 40                                   | 107    | 102    | 106    | 41.6  | 98                       | G              | VG         | F          | P                    |
| Legend                                     | 108    | 101    | 102    | 42.3  | 99                       | G              | VG         | F          | P                    |
| Profit                                     | 102    | 90     | 93     | 44.1  | 99                       | F              | VG         | F          | P                    |
| Vanguard                                   | 110    | 94     | 105    | 42.9  | 98                       | G              | VG         | F          | P                    |
| AC Tristar (TT)                            | 88     | 79     | 80     | 41.7  | 99                       | F              | VG         | VP         | P                    |
| Stallion (TT)                              | 88     | 73     | 77     | 40.5  | 101                      | G              | VG         | F          | P                    |
| Tribute (TT)                               | 68     | 67     | 70     | 39.7  | 98                       | VP             | VG         | VP         | P                    |
| Yield as % of Tobin (See Comments Section) |        |        |        |       |                          |                |            |            |                      |
| Polish                                     |        |        |        |       |                          |                |            |            |                      |
| Tobin                                      | 100    | 100    | 100    | 41.6  | 86                       | G              | G          | P          | P                    |
| AC Parkland                                | 103    | 101    | 104    | 43.1  | 88                       | G              | VG         | P          | P                    |
| Colt                                       | 103    | 99     | 97     | 42.4  | 88                       | G              | VP         | P          | P                    |
| Eclipse                                    | 104    | 98     | 98     | 43.0  | 87                       | G              | F          | P          | P                    |
| Horizon                                    | 107    | 99     | 103    | 42.3  | 88                       | G              | VP         | P          | P                    |

TT = Triazine tolerant

\*Resistance ratings: VG — very good; G — good; F — fair; P — poor; VP — very poor.

\*\*A minimum of 3 years between canola crops (4 year rotation) is essential to reduce the incidence of blackleg.

### Comments

Argentine varieties yield, on average, 20% more seed than Polish varieties, and mature in approximately 100 days. These varieties are best suited to the longer season growing areas of central Saskatchewan. Polish varieties mature in 88 days, and are therefore well adapted to the short season growing areas of northern Saskatchewan. Under conditions of drought or early fall frost, which shorten the growing period, the yield of Polish varieties can be equal to or greater than that of Argentine varieties. Polish varieties are also less likely to produce green seed.

All Argentine varieties are black seeded, they all have very good white rust resistance, but their resistance to sclerotinia stem rot is poor. **Westar** is early maturing, has high oil content, fair lodging resistance, and very poor blackleg resistance. **AC Excel** has high yield, high oil content and fair blackleg resistance. **Alto** is similar to

**Westar**. **Bounty** has very high yield, good oil content and is medium in maturity. **Celebra** is late maturing.

**Delta** has very high yield, but has low oil content and tends to mature later.

**Hyola 40**, a hybrid variety, has high yield but low oil content. **Legend** has high yield and fair blackleg resistance.

**Profit** has very high oil content and fair blackleg resistance. **Vanguard** has high yield and medium maturity. Varieties that are susceptible to blackleg should not be grown in blackleg prone areas because of severe yield losses that can occur through infestations with blackleg in those areas.

**AC Tristar**, **Stallion** and **Tribute** are triazine tolerant (TT) varieties. Their seed yields under weed free conditions, are substantially lower than that of other Argentine varieties. They also have significantly lower oil contents. These varieties should only be considered for planting on fields

where severe infestations of stinkweed and/or wild mustard weeds are expected. For registered herbicides consult "Chemical Weed Control in Cereal, Oilseed, Pulse and Forage Crops 1991". **AC Tristar** is a high yielding, high oil content TT-variety, but has very poor resistance to blackleg. **Tribute** has low yield and oil content and has also very poor blackleg resistance. **Stallion** has high yield and fair blackleg resistance.

All Polish varieties are yellow-brown seeded. They all have poor blackleg and sclerotinia stem rot resistance. **Tobin** is an early maturing variety with good white rust resistance, its oil content is low. **AC Parkland** is high yielding, has high oil content and very good white rust resistance. **Colt** and **Horizon** have high oil content, but have very poor white rust resistance. **Eclipse** has high oil content and fair resistance to white rust. A new race of

white rust, found in 1988, can attack all Polish type varieties.

Argentine type varieties respond well to irrigation, but blackleg susceptible varieties should be avoided since irrigation may increase the incidence of blackleg. Irrigation might

delay maturity by one week or more under cooler conditions at harvest.

### Industrial Oil

For special industrial oil markets, a high erucic acid oil is needed. Varieties producing such oils are available, and

information on the contract production of these varieties should be obtained from the industry. A high erucic acid variety, **Hero**, that is registered for the production of high erucic acid oil is available for this market.

## Flax

### Main Characteristics of Varieties

| Variety    | Irr | Yield as % of NorLin |        |        |        | Average Maturity in Days | Resistance to* |      |      |         |
|------------|-----|----------------------|--------|--------|--------|--------------------------|----------------|------|------|---------|
|            |     | Area 1               | Area 2 | Area 3 | Area 4 |                          | Seed Size      | Rust | Wilt | Lodging |
| NorLin     | 100 | 100                  | 100    | 100    | 100    | 101                      | Medium         | VG   | G    | G       |
| Andro      | 89  | 98                   | 92     | 95     | 93     | 100                      | Medium         | VG   | F    | G       |
| Flanders** | 102 | 98                   | 110    | 105    | 107    | 102                      | Small          | VG   | G    | VG      |
| McGregor   | 102 | 97                   | 98     | 99     | 94     | 103                      | Small          | VG   | G    | VG      |
| NorMan     | 98  | 102                  | 100    | 99     | 99     | 101                      | Medium         | VG   | G    | G       |
| Somme**    | 105 | 97                   | 106    | 108    | 99     | 101                      | Medium         | VG   | G    | G       |
| Vimy       | 86  | 108                  | 106    | 101    | 98     | 101                      | Large          | VG   | G    | F       |

\*Resistance ratings: VG — very good; G — good; F — fair; P — poor; VP — very poor.

\*\*Limited Data

### Comments

**Andro** is an early-maturing, rust-resistant variety that should replace the old rust-susceptible variety **Noralta**.

**Flanders** is a new variety expected to be a high yielding replacement for **McGregor**. Seed of **Flanders** will not be available in 1991.

**McGregor** is a high yielding but later maturing variety. It has better straw strength than other varieties and

should be considered for irrigation in areas where maturity is not a problem.

**NorLin** is high yielding and earlier maturing than **McGregor**. **NorLin**'s good straw strength also makes it a good choice for irrigation.

**NorMan** is a medium-late variety with similar characteristics to **NorLin**.

**Somme** is a new medium-early maturing variety that may replace **NorLin**. Seed will not be available in

1991.

**Vimy** is a medium-late variety with large seed that is very well adapted to zones 1 and 2.

Frozen flax should be analyzed by the Saskatchewan Feed Testing Laboratory to determine that it is free of prussic acid before using it as a livestock feed.

## Condiment Mustard

### Main Characteristics of Varieties

| Type & Variety  | Yield as % of Cutlass | Average Maturity in days |
|-----------------|-----------------------|--------------------------|
| <b>Oriental</b> |                       |                          |
| Cutlass         | 100                   | 92                       |
| Domo            | 100                   | 92                       |
| Forge           | 96                    | 94                       |
| Lethbridge 22A  | 88                    | 93                       |
| <b>Brown</b>    |                       |                          |
| Commercial      | 89                    | 94                       |
|                 | Yield as % of Ochre   |                          |
| <b>White</b>    |                       |                          |
| Ochre           | 100                   | 93                       |
| Gisilba         | 95                    | 93                       |
| Kirby           | 99                    | 92                       |
| Tilney          | 97                    | 93                       |

### Comments

Mustard is grown in the drier regions of the province because of the better seed quality obtained under these conditions. Oriental and Brown mustards are usually swathed, but straight combining is also possible. White mustard should be straight combined because of possible losses due to wind damage to the fluffy swath. Any mixtures of rapeseed in mustard, due to volunteer plants in the field or to improper handling on the farm, cause substantial losses through grade reductions.

Oriental mustard varieties are yellow seeded. **Cutlass** and **Domo** are high yielding and early maturing. **Forge** has good yield and superior seed quality. **Lethbridge 22A** is low yielding and susceptible to lodging. **Cutlass**, **Domo**

and **Lethbridge 22A** are resistant to white rust, while **Forge** is highly susceptible.

**Commercial Brown** mustard is brown seeded. It yields 10% less than **Cutlass** and is highly susceptible to white rust.

White mustard varieties are large seeded and seed is light yellow in colour. They yield, on average, 30% less than the Oriental mustard variety **Cutlass**. **Ochre** and **Kirby** are high yielding while **Gisilba** and **Tilney** yield less.

All mustard varieties are resistant to blackleg.

Mustard is usually grown under contract. Differences in yield between the types is normally compensated for by contract price.

## Sunflower (oilseed)

### Main Characteristics of Varieties

| Variety | Yield as %<br>of IS<br>7111 | Average<br>Maturity<br>in days | Oil % |
|---------|-----------------------------|--------------------------------|-------|
| IS 7111 | 100                         | 120                            | 47.9  |
| IS 7000 | 99                          | 120                            | 47.6  |
| DO 855  | 106                         | 121                            | 46.5  |
| DO 707  | 118                         | 122                            | 46.0  |
| S 1296  | 107                         | 121                            | 46.3  |

### Comments

Sunflower requires 110-125 days to mature, depending on the cultivar and the growing season. Oilseed sunflower has traditionally been grown in the Dark Brown and Black soil zones in southeastern Saskatchewan. The introduction of early maturing varieties and continued research may expand the production area north. Later maturing hybrids have been grown but should be considered only in the extreme southeast of Saskatchewan

and at Outlook. Contractors and crushers may pay a premium for high oil content. The Saskatchewan Sunflower Committee conducted tests at Saskatoon, Watrous, Brownless, Outlook, and Carievale.

## Pulse Crops

### Field Pea

### Main Characteristics of Varieties

| Yield as % of Century |            |            |                     |                | Resistance to* |         |           |             |
|-----------------------|------------|------------|---------------------|----------------|----------------|---------|-----------|-------------|
| Seed                  | Area 2 and | Area 4 and | Average             | Vine           | Ascochyta      | Powdery | Seed Coat | Seed Weight |
| (yellow or green)     | Area 3     | Northern 3 | Maturity<br>in Days | length<br>(cm) | Blight         | Mildew  | Breakage  | (g/1000)    |
| Century               | Y          | 100        | 101                 | 102            | P              | P       | F         | 250         |
| Bellevue              | Y          | 107        | 104                 | 105            | P              | P       | G         | 190         |
| Danto                 | G          | 60         | 95                  | 53             | P              | P       | F         | 290         |
| Express               | Y          | 120        | 126                 | 96             | 61             | P       | VP        | 260         |
| Fortune               | Y          | 120        | 117                 | 104            | 81             | P       | VP        | 210         |
| Miranda               | Y          | 109        | 101                 | 93             | 51             | P       | VP        | 330         |
| Princess              | G          | 107        | 90                  | 93             | 61             | P       | P         | 190         |
| Radley                | G          | 122        | 112                 | 98             | 61             | P       | VP        | 200         |
| Tara                  | Y          | 124        | 117                 | 103            | 97             | F       | VG        | 230         |
| Tipu                  | Y          | 97         | 104                 | 99             | 104            | P       | P         | 240         |
| Titan                 | Y          | 111        | 107                 | 102            | 104            | P       | P         | 270         |
| Trapper               | Y          | 105        | 110                 | 100            | 94             | P       | P         | 150         |
| Victoria              | Y          | 108        | 121                 | 95             | 86             | P       | VP        | 190         |

\*Resistance ratings: VG — very good; G — good; F — fair; P — poor; VP — very poor.

### Comments

Field pea is best adapted to the more northerly Black and Gray soil zones. Early seeding will usually result in late August maturity and increase the likelihood of harvesting high quality seed. Seed splitting may be reduced by harvesting pea tough and drying in an aeration bin. The recommended seeding rate for **Trapper** is 135 kg/ha (120 lb/ac). Other varieties should be sown at higher rates in proportion to seed weight.

Under dry conditions, **Danto**, **Tipu**, **Radley**, **Miranda**, **Express**, and **Princess** provide particularly poor weed competition. As well, the short vines of **Danto**, **Miranda**, **Express** and **Princess** makes harvesting difficult.

**Danto**, **Tipu** and **Radley** are semi-leafless. The main advantage of this plant type is easier harvesting as vines do not lay as flat on the ground.

**Danto**, **Princess** and **Radley** are green seeded varieties for which there is considerable risk of low grades due to bleaching. **Radley** is semi-leafless, and has higher yield and longer vines than **Princess** or **Danto**.

Damaged and uncleaned seed of all varieties may be utilized for feed purposes, but some varieties are of lower quality and are only suitable for the feed market. When growing field pea for feed, one should select a high-yielding variety, such as **Tara**. **Sirius**, **Stegholt** and **Whero** are newly-registered feed varieties and only

limited yield data are available. Small seed size is desirable for reducing the cost of seeding feed varieties, but **Stegholt** has very large seed.

Provided that adequate moisture is available, the field pea, like other legumes, offers considerable benefit when grown in rotation with other crops. Proper seed inoculation results in symbiotic nitrogen fixation which reduces input costs by supplying most of the nitrogen required by a productive pea crop. In addition, succeeding crops require less nitrogen fertilizer to attain high yields. See seed inoculation section.

## Lentil

### Main Characteristics of Varieties

| Variety | Yield<br>as % of<br>Laird | Height<br>(cm) | Days to<br>First<br>Flower | Resistance to *     |             | Seed<br>Size | Seeding<br>Rates<br>kg/ha(lb/A) |
|---------|---------------------------|----------------|----------------------------|---------------------|-------------|--------------|---------------------------------|
|         |                           |                |                            | Ascochyta<br>Blight | Anthracnose |              |                                 |
| Laird   | 100                       | 41             | 51                         | F                   | P           | Large        | 90-100 (80-90)                  |
| Eston   | 106                       | 30             | 48                         | VP                  | VP          | Small        | 45-50 (40-45)                   |
| Rose    | 93                        | 32             | 47                         | VP                  | VP          | Medium       | 60-70 (53-62)                   |

\* Resistance ratings: VG — very good; G — good; F — fair; P — poor; VP — very poor

### Comments

Lentil is best adapted to the Brown, Dark Brown and southernmost areas of the Black soil zones. It has about the same growing season requirement as durum wheat. However, lentil has an indeterminate growth habit and some stress is required during flowering to stimulate heavy pod set. A nitrogen stress can be induced by seeding early on cereal stubble. A drought stress occurs naturally during most years in the Brown and Dark Brown soil zones or can be induced by early seeding on light soils in the Black soil zone.

Young lentil plants can tolerate a light frost; a heavier frost will kill the tops, but they will regrow from axillary buds at or below the soil surface. Thus lentil can and should be seeded early, even earlier than wheat and as soon as the soil temperature at seeding depth exceeds 5°C. Early seeding is also important from the standpoint of

reducing the hazard from early fall frosts which severely damage immature seeds. Lentil will not tolerate flooding or salt-affected soils.

Lentil plants are short (30-45 cm) and must be swathed close to the ground using a pick-up reel. Thus, they should be seeded on a smooth, rock-free seedbed to facilitate swathing.

Three lentil varieties have been developed for Western Canada. **Laird** is a tall, late-maturing variety with extra-large seeds and has become the industry standard for quality. **Laird** has fair resistance to ascochyta leaf, stem and pod blight. **Eston** is a short, erect, early-maturing variety with small seeds and is highly susceptible to ascochyta blight.

**Laird** and **Eston** have yellow cotyledons, while **Rose** has red cotyledons. **Rose** seed is flat and splits poorly, limiting its use in the red split lentil

market.

**Indianhead**, a black seeded lentil, is very late maturing and was developed as a green manure lentil. It has small seed which reduces the cost of establishment. The seeding rate is 39 - 44 kg/ha (35-40 lbs/A). **Indianhead** will produce an average yield if planted early and subjected to a drought stress in July and August.

Lentil producers should plant lentil seed that has been tested for seed-borne ascochyta and anthracnose and avoid planting next to the previous year's lentil residues. Growers from northern areas and pedigree seed producers should use only disease-free seed (none-detected). In the drier areas up to 4% seed-borne ascochyta does not normally cause a problem. The risks associated with seed-borne anthracnose have not been fully determined.

## Faba Bean

### Main Characteristics of Varieties

| Variety | Yield<br>as % of<br>Outlook | Average<br>Maturity<br>in Days | Seed<br>Size |
|---------|-----------------------------|--------------------------------|--------------|
| Outlook | 100                         | 109                            | small        |
| Aladin  | 106                         | 112                            | large        |
| Orion   | 68                          | 102                            | small        |
| Pegasus | 100                         | 111                            | small        |

### Comments

Faba bean should be seeded early (late April to early May). It is best adapted to irrigated areas in the Dark Brown Soil Zone and to that portion of the Black Soil Zone with the longest growing season.

**Outlook** and **Pegasus** are the

highest yielding varieties under irrigation production. **Orion** is the earliest maturing variety and is a good performer in areas with a short growing season.

Faba bean is a legume and thus is able to use nitrogen from the air provided the seed is inoculated with the proper bacteria prior to planting. Faba bean requires a special strain of inoculum which is different from other pulse crops.

## Other Crops

### Canary Seed

The seed of annual canarygrass, more commonly called canary seed, is used as food for caged and wild birds. It is generally grown under contract with the contracting companies providing the seed. Two registered varieties are available. **Elias** and **Keet** are similar in yield, but **Keet** is earlier maturing and more resistant to lodging. The maturity requirements are equal to wheat. Canary seed plants have a dense shallow root system and thus growing the crop on sandy soils is not recommended. Summerfallow is generally used, but canary seed may be grown successfully on well-prepared stubble, providing adequate moisture is available for rapid germination and emergence.

Seed early in May at 34 kg/ha (30 lb/A) (germination greater than 85 percent). Plant the seed 3.5 to 5 cm deep into a firm seedbed. A grain drill is recommended.

Fertilizer recommendations are similar to those for cereal crops. No serious insect or disease problems have been identified. Canary seed is very sensitive to diclofop methyl and trifluralin. It should not be seeded on land that was treated with trifluralin the previous year.

Canary seed is resistant to shattering. It may be straight-combined or swathed when fully matured.

## Safflower

Safflower is an annual oilseed or birdseed crop which can be grown successfully in the brown soil zone. Safflower must be sown early. **Saffire** matures in about 119 days. Seed shallow but into a firm moist seedbed at about 27 lbs/A. **Saffire** has moderate resistance to Sclerotinia head rot and Alternaria leaf spot. Contract production is advisable.

# Seed Facts

## Pedigreed Seed

Use certified seed regularly, and especially when changing to a different variety. This assures that the seed has high genetic purity, high germination and is relatively free from weeds and other crop seeds. Pedigreed seed may be paid for by an over-quota delivery of commercial grain. Ask your elevator agent or seed dealer for details.

## Seed Cleaning

Seed should be carefully cleaned to remove weed seeds, trash, small or broken kernels, ergot and sclerotia. **Country grain elevators are not equipped to clean grain to seed standards, and the risk of mixing varieties and types of grain is very high.**

## Seed Treatment

Smuts that attack wheat, barley, oat and rye can be controlled by chemical seed treatments. If bunt or smut was observed in a crop which is being used for seed it should be treated. Seed of

susceptible varieties known to be free of smut or resistant cultivars should not require treatment. **If the presence of smut is uncertain then varieties rated VERY POOR should be treated every year, POOR every second year, and FAIR every third year.**

The virulent form of blackleg is now widespread on canola in Saskatchewan. Treatment of seed with a recommended fungicide can be beneficial to reduce the disease and the risk of introducing the disease into unaffected areas. Growers with carryover stocks of treated seed should have these tested for germination.

Coating of canola with the appropriate seed dressing is a convenient alternative to on farm seed treatment.

Various fungicides have been registered for the control of seeding disease. Flax, rye and winter wheat seed should be treated to promote good seeding growth.

Wireworms, which attack all grain crops and flea beetles, which attack canola and mustard, can be controlled by seed treatment with insecticides. Read the label carefully and follow all directions.

Treated seed **must not** be allowed to contaminate grain delivered to an elevator or used for feed.

## Ergot

Ergot attacks all varieties of rye, triticale, wheat and barley, as well as most common species of grass. Oat is rarely attacked and all broadleaved species are immune. Grain containing 0.1% ergot is considered poisonous and should not be used as food. For details on the disease obtain a copy of 'Ergot of Grains and Grasses'. Publ. 1438.

## Seed Inoculation

Legume crops are only able to fix atmospheric nitrogen if their roots are well nodulated with nitrogen-fixing bacteria. Whenever a legume is planted in a field it is important that the seed be inoculated with the **proper** strain of nitrogen-fixing bacteria immediately before seeding. The use of a sticker such as a syrup solution or a powdered milk solution will help assure proper inoculation.

## Seed-borne Diseases of Lentil

Lentil producers should plant lentil seed that has been tested for seedborne ascochyta and anthracnose and avoid planting next to the previous year's lentil residue. See lentil section for suggested tolerances.

## Damp and Frozen Seed

**Seed which is stored damp or tough may be low in germination.** Grain which is being saved for seed should be dried if necessary, soon after harvest. Drying temperature should be kept below 37°C for batchdriers, or 43°C for recirculating and continuous driers. Frozen grain should never be sown without a laboratory germination test. There is frequently a high percentage of abnormal seedlings which may be unnoticed by an inexperienced observer.

## Production Notes

All classes of wheat including durum and triticale are susceptible to wheat midge. Farmers in the infested area should be prepared to spray these fields with recommended insecticides if necessary. Refer to **Orange Wheat Blossom Midge** Publication.

Residue of infected crops may harbour disease agents. Seeding into stubble of the same crop kind may increase disease risk, particularly in the higher rainfall areas.

Inspect fields weekly for the presence of Russian wheat aphid. Infested plants will show white or purple longitudinal stripes. Biology and control of this aphid are described in the leaflet "Russian Wheat Aphid".

## Breeding Institutions and Seed Distributors of Varieties Listed in This Publication

| Crop Kind,<br>Class & Variety      | Breeding Institution                                                                       | Distributor     |
|------------------------------------|--------------------------------------------------------------------------------------------|-----------------|
| <b>Wheat</b>                       |                                                                                            |                 |
| <b>Bread Wheat</b>                 |                                                                                            |                 |
| Benito                             | Ag Canada (Winnipeg)                                                                       | SeCan Members   |
| Columbus                           | Ag Canada (Winnipeg)                                                                       | SeCan Members   |
| Conway                             | Univ. of Sask. --<br>Crop Development Centre                                               | Sask Wheat Pool |
| Katepwa                            | Ag Canada (Winnipeg)                                                                       | SeCan Members   |
| Kenyon                             | Univ. of Sask. --<br>Crop Development Centre                                               | SeCan Members   |
| Laura                              | Ag Canada (Swift Current)                                                                  | SeCan Members   |
| Leader                             | Ag Canada (Swift Current)                                                                  | SeCan Members   |
| Lancer                             | Ag Canada (Swift Current)                                                                  | SeCan Members   |
| CDC Makwa                          | Univ. of Sask. --<br>Crop Development Centre                                               | SeCan Members   |
| Neepawa                            | Ag Canada (Winnipeg)                                                                       | public          |
| Pasqua                             | Ag Canada (Winnipeg)                                                                       | SeCan Members   |
| Roblin                             | Ag Canada (Winnipeg)                                                                       | SeCan Members   |
| <b>Canada Prairie Spring Wheat</b> |                                                                                            |                 |
| Biggar                             | Ag Canada (Swift Current)                                                                  | SeCan Members   |
| Genesis                            | Ag Canada (Swift Current)                                                                  | SeCan Members   |
| Oslo                               | NAPB; Sask Wheat Pool                                                                      | Sask Wheat Pool |
| <b>Canada Western Utility</b>      |                                                                                            |                 |
| Bluesky                            | Ag Canada (Beaverlodge)                                                                    | SeCan Members   |
| Glenlea                            | Univ. of Manitoba                                                                          | public          |
| Wildcat                            | Ag Canada (Beaverlodge)                                                                    | SeCan Members   |
| <b>Durum</b>                       |                                                                                            |                 |
| Arcola                             | Univ. of Sask. --<br>Crop Development Centre                                               | SeCan Members   |
| Kyle                               | Ag Canada (Swift Current)                                                                  | SeCan Members   |
| Medora                             | Ag Canada (Winnipeg)                                                                       | SeCan Members   |
| Plenty                             | Univ. of Sask. --<br>Crop Development Centre                                               | SeCan Members   |
| Sceptre                            | Univ. of Sask. --<br>Crop Development Centre                                               | SeCan Members   |
| Wakooma                            | Ag Canada (Swift Current)                                                                  | public          |
| Wascana                            | Ag Canada (Swift Current)                                                                  | public          |
| <b>Soft White Spring Wheat</b>     |                                                                                            |                 |
| Fieldier                           | Idaho State Univ. & USDA;<br>Ag Canada (Lethbridge)                                        | public          |
| SWS-52                             | Ag Canada (Lethbridge)                                                                     | SeCan Members   |
| <b>Winter Wheat</b>                |                                                                                            |                 |
| Norstar                            | Ag Canada (Lethbridge)                                                                     | public          |
| Norwin                             | Montana Ag Exp. Station & USDA<br>(Aberdeen); Univ. of Sask. --<br>Crop Development Centre | public          |
| <b>Winter Rye</b>                  |                                                                                            |                 |
| Musketeer                          | Ag Canada (Swift Current)                                                                  | SeCan Members   |
| Prima                              | Ag Canada (Swift Current)                                                                  | SeCan Members   |
| Puma                               | Univ. of Manitoba                                                                          | public          |
| <b>Spring Rye</b>                  |                                                                                            |                 |
| Gazelle                            | Univ. of Sask. --<br>Crop Development Centre                                               | public          |
| <b>Triticale</b>                   |                                                                                            |                 |
| Carman                             | Univ. of Manitoba                                                                          | SeCan Members   |
| Frank                              | Ag Canada (Swift Current)                                                                  | SeCan Members   |
| Wapiti                             | CIMMYT; Alta Ag                                                                            | SeCan Members   |
| <b>Barley</b>                      |                                                                                            |                 |
| <b>Maltng</b>                      |                                                                                            |                 |
| Argyle                             | Univ. of Manitoba                                                                          | SeCan Members   |
| Bonanza                            | Ag Canada (Brandon)                                                                        | public          |
| B1602                              | Busch Ag. Res. Inc.                                                                        | Sask Wheat Pool |
| Ellice                             | Ag Canada (Winnipeg)                                                                       | SeCan Members   |
| Harrington                         | Univ. of Sask. --<br>Crop Development Centre                                               | SeCan Members   |

| Crop Kind,<br>Class & Variety | Breeding Institution                                       | Distributor                                                                    |
|-------------------------------|------------------------------------------------------------|--------------------------------------------------------------------------------|
| Klages                        | USDA (Idaho); Univ. of Sask. --<br>Crop Development Centre | public                                                                         |
| Manley                        | Univ. of Sask. --<br>Crop Development Centre               | SeCan Members                                                                  |
| <b>Feed</b>                   |                                                            |                                                                                |
| Abee                          | Alta Ag (Lacombe)                                          | SeCan Members                                                                  |
| Bridge                        | Ad Canada (Lethbridge)                                     | SeCan Members                                                                  |
| Brier                         | Univ. of Sask. --<br>Crop Development Centre               | SeCan Members                                                                  |
| Deuce                         | Univ. of Sask. --<br>Crop Development Centre               | SeCan Members                                                                  |
| Heartland                     | Ag Canada (Brandon)                                        | SeCan Members                                                                  |
| Johnston                      | Ag Canada (Brandon)                                        | SeCan Members                                                                  |
| Leduc                         | Ag Canada (Brandon)                                        | SeCan Members                                                                  |
| Noble                         | Alta Ag (Lacombe)                                          | SeCan Members                                                                  |
| Viriden                       | Ag Canada (Brandon)                                        | SeCan Members                                                                  |
| <b>Hulless</b>                |                                                            |                                                                                |
| CDC Buck                      | Univ. of Sask. --<br>Crop Development Centre               | SeCan - UGG                                                                    |
| CDC Richard                   | Univ. of Sask. --<br>Crop Development Centre               | SeCan - UGG                                                                    |
| Condor                        | Alta Ag (Lacombe)                                          | SeCan Members                                                                  |
| Scout                         | Univ. of Sask. --<br>Crop Development Centre               | SeCan Members                                                                  |
| Tupper                        | University of Sask --<br>Crop Development Centre           | SeCan Members                                                                  |
| <b>Intensive Management</b>   |                                                            |                                                                                |
| Duke                          | Univ. of Sask. --<br>Crop Development Centre               | SeCan Members                                                                  |
| Samson                        | Alta Ag (Lacombe)                                          | SeCan Members                                                                  |
| Winchester                    | Western Plant Breeders;<br>Prairie Pools                   | Sask Wheat Pool                                                                |
| <b>Oat</b>                    |                                                            |                                                                                |
| Calibre                       | Univ. of Sask. --<br>Crop Development Centre               | SeCan Members                                                                  |
| Cascade                       | Ag Canada (Lacombe)                                        | SeCan Members                                                                  |
| Derby                         | Univ. of Sask. --<br>Crop Development Centre               | United Grain Growers                                                           |
| Dumont                        | Ag Canada (Winnipeg)                                       | SeCan Members                                                                  |
| Harmon                        | Ag Canada                                                  | public                                                                         |
| Jasper                        | Ag Canada (Lacombe)                                        | SeCan Members                                                                  |
| Riel                          | Ag Canada (Winnipeg)                                       | SeCan Members                                                                  |
| Robert                        | Ag Canada (Winnipeg)                                       | SeCan Members                                                                  |
| Waldern                       | Ag Canada (Lacombe)                                        | SeCan Members                                                                  |
| <b>Canola</b>                 |                                                            |                                                                                |
| <b>Argentine</b>              |                                                            |                                                                                |
| AC Excel                      | Ag Canada (Saskatoon)                                      | SeCan Members                                                                  |
| Alto                          | Univ. of Alta.                                             | Can Alta Grain,<br>Canbra Foods<br>Ltd., Northern<br>Sales, United<br>Oilseeds |
| Bounty                        | Allelix Inc.                                               | United Grain Growers                                                           |
| Celebra                       | Svalof; Bonis                                              | Newfield Seeds,<br>Canadian Seed<br>Coaters                                    |
| Delta                         | Allelix Inc.                                               | United Grain Growers                                                           |
| Hyola 40                      | Garst Seed Company Canada                                  | Garst Seed Agents                                                              |
| Global                        | Svalof; Bonis                                              | Sask Wheat Pool,<br>Canbra Foods Ltd                                           |
| Legend                        | Svalof; Bonis                                              | Sask Wheat Pool                                                                |
| Profit                        | Ag Canada (Saskatoon)                                      | SeCan Members                                                                  |
| Tribute (TT)                  | Ag Canada (Saskatoon);<br>University of Guelph             | SeCan Members                                                                  |

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| Crop Kind,<br>Class & Variety | Breeding Institution                          | Distributor                                 | Crop Kind,<br>Class & Variety | Breeding Institution                                       | Distributor                                    |
|-------------------------------|-----------------------------------------------|---------------------------------------------|-------------------------------|------------------------------------------------------------|------------------------------------------------|
| AC Tristar (TT)               | Ag Canada (Saskatoon)                         | SeCan Members                               | <b>Field Pea</b>              |                                                            |                                                |
| Stallion (TT)                 | Svalof; Bonis                                 | Sask Wheat Pool                             | Bellevue                      | Univ. of Sask. --                                          |                                                |
| Vanguard                      | Svalof; Bonis                                 | Newfield Seeds,<br>Canadian Seed<br>Coaters |                               | Crop Development Centre                                    | SeCan Members                                  |
| Westar                        | Ag Canada (Saskatoon)                         | SeCan Members                               | Century                       | Ag Canada (Morden)                                         | public                                         |
| <b>Polish</b>                 |                                               |                                             | Danto                         | L. Dsenfeldt                                               | Brett Young<br>Seeds                           |
| Colt                          | Svalof; Bonis                                 | Sask Wheat Pool                             | Express                       | Svalof; Bonis                                              | Newfield Seeds                                 |
| Eclipse                       | Univ. of Alberta                              |                                             | Fortune                       | Svalof; Bonis                                              | Newfield Seeds                                 |
| Horizon                       | Svalof; Bonis                                 | Sask Wheat Pool                             | Miranda                       | Cebeco; Manitoba Pool                                      | Manitoba Pool                                  |
| AC Parkland                   | Ag Canada (Saskatoon)                         | SeCan Members                               | Princess                      | Wilbur Ellis Co; CanMar Grain                              | Ron McKinnon<br>Stu Robson                     |
| Tobin                         | Ag Canada (Saskatoon)                         | SeCan Members                               | Radley                        | Booker Seeds Ltd;<br>Columbia Seeds                        | Columbia Seeds<br>(Alta)                       |
| <b>Industrial</b>             |                                               |                                             | Tara                          | Ag Canada (Morden)                                         | SeCan Members                                  |
| Hero                          | Univ. of Manitoba                             | CSP Foods                                   | Tipu                          | Ag Canada (Morden)                                         | SeCan Members                                  |
| <b>Flax</b>                   |                                               |                                             | Titan                         | Ag Canada (Morden)                                         | SeCan Members                                  |
| Andro                         | Univ. of Sask. --<br>Crop Development Centre  | SeCan Members                               | Trapper                       | Ag Canada (Morden)                                         | public                                         |
| Flanders                      | Univ. of Sask. --<br>Crop Development Centre  | SeCan Members                               | Victoria                      | Svalof; Bonis                                              | Newfield Seeds                                 |
| McGregor                      | Ag Canada (Morden)                            | SeCan Members                               | <b>Lentil</b>                 |                                                            |                                                |
| NorLin                        | Ag Canada (Morden)                            | SeCan Members                               | Eston                         | Univ. of Sask. --<br>Crop Development Centre               | SeCan Members                                  |
| NorMan                        | Ag Canada (Morden)                            | SeCan Members                               | Indianhead                    | Univ. of Sask. --<br>Crop Development Centre               | SeCan Members                                  |
| Somme                         | Univ. of Sask. --<br>Crop Development Centre  | SeCan Members                               | Laird                         | Univ. of Sask. --<br>Crop Development Centre               | SeCan Members                                  |
| Vimy                          | Univ. of Sask. --<br>Crop Development Centre  | SeCan Members                               | Rose                          | Univ. of Sask. --<br>Crop Development Centre               | United Grain<br>Growers                        |
| <b>Mustard (Condiment)</b>    |                                               |                                             | <b>Faba Bean</b>              |                                                            |                                                |
| <b>Brown</b>                  |                                               |                                             | Aladin                        | Univ. of Manitoba                                          | public                                         |
| Commercial                    |                                               | Trade                                       | Orion                         | Ag Canada (Lacombe)                                        | Roger Lee (Alta)<br>Lyster Farms Ltd<br>(Alta) |
| <b>Oriental</b>               |                                               |                                             | Outlook                       | Univ. of Sask. --<br>Crop Development Centre               | SeCan Members                                  |
| Cutlass                       | Ag Canada (Saskatoon)                         | Trade                                       | Pegasus                       | University of Manitoba                                     | Roy Legumex<br>(Man)                           |
| Domo                          | Ag Canada (Saskatoon)                         | Trade                                       | <b>Canary Seed</b>            |                                                            |                                                |
| Forge                         | Garst Seed Company Canada                     | Garst Seed<br>Agents, Trade                 | Elias                         | University of Minnesota; U of S<br>Crop Development Centre | public                                         |
| Lethbridge 22A                | Ag Canada (Saskatoon)                         | Trade                                       | Keet                          | Univ. of Minnesota; U of S<br>Crop Development Centre      | public                                         |
| <b>White</b>                  |                                               |                                             | <b>Safflower</b>              |                                                            |                                                |
| Gisilba                       | Kurt Behm GMBH;<br>Ag Canada (Saskatoon)      | Northern Sales                              | Saffire                       | Ag Canada (Lethbridge)                                     | Jerry Hubick<br>Alberta                        |
| Kirby                         | Colman's of Norwich;<br>Ag Canada (Saskatoon) | United Grain<br>Growers                     |                               |                                                            |                                                |
| Ochre                         | Ag Canada (Saskatoon)                         | Trade                                       |                               |                                                            |                                                |
| Tilney                        | Colman's of Norwich;<br>Ag Canada (Saskatoon) | United L<br>Growers                         |                               |                                                            |                                                |
| <b>Sunflower</b>              |                                               |                                             |                               |                                                            |                                                |
| DO-707                        | Dahlgren and Company                          | farmer dealers                              |                               |                                                            |                                                |
| DO-855                        | Dahlgren and Company                          | farmer dealers                              |                               |                                                            |                                                |
| IS 7000                       | Interstate Seeds                              | Sask. Wheat Pool                            |                               |                                                            |                                                |
| IS 7111                       | Interstate Seeds                              | Sask. Wheat Pool                            |                               |                                                            |                                                |
| S 1296                        | Norhup King                                   | farmer dealers                              |                               |                                                            |                                                |